

Rule 312 Amendment - Ser. No. 10/771,905
August 1, 2006
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IN THE CLAIMS

Kindly amend the claims as shown in the following complete listing:

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1. (currently amended) An apparatus for wrapping groups (1) of products (2) with film, the apparatus (4) comprising at least the following:

a first surface (5) and a second surface (6), the first surface (5) moving in a direction (A) for conveying the products (2) to the second surface (6) and forming the product groups (1);

wrapping means for wrapping the groups (1) with a length of the film (3), the wrapping means (7) having a first drive axis (AE1);

a film (3) feed unit (8) defining the length of film (3) whose length depends on the dimensions of the group (1) of products to be wrapped, the unit (8) being located below and adjacent to a slot (9) separating the first surface (5) from the second surface (6), the feed unit having a second electric drive axis (AE2) to which enables a defined quantity of film (3) to be unwound in the direction of the second surface (6);

a pre-unwinding unit (10) for pre-unwinding the film (3), ~~(10) comprising~~ comprising at least one roll (11) of film (3) located upstream of the feed unit (8) with respect to an unwinding direction (B) and under the first and second surfaces (5, 6);

a third electric drive axis (AE3) located and operative on the pre-unwinding unit (10) to move the film (3) towards the feed unit (8) according to the film (3) requirement or feed speed controlled by the second electric axis (AE2) of the feed unit (8);

a unit (12) which controls the second and third electric axes (AE2, AE3) and which is located and operative between the two electric axes (AE2, AE3) to synchronize the control of film (3) feed;

the apparatus (4) further comprising a plurality of idle film tensioning rollers (30) located between the roll (11) and a pair of film feed rollers (15, 16), a first group of the idle tensioning rollers (30) being fixed on a plate (31) that mounts a third drive (14), and a second group of the idle tensioning rollers (30) being mounted on a rocker arm (32) pivoted on a frame (33) forming part of the apparatus (4).

2. (original) The apparatus according to claim 1, wherein the third electric axis (AE3) is located between the roll (11) and a roller (13) that controls the unwinding of the film (3).

3. (original) The apparatus according to claim 1, wherein the third electric axis (AE3) is located and operative on the film roll (11).

4. (previously presented) The apparatus according to claim 1, wherein the third electric axis (AE3) comprises at least the third drive (14) positioned between the roll (11) and the roller (13), and the pair of film (3) feed rollers (15, 16), one of which is kinematically connected to the third drive (14).

5. (original) The apparatus according to claim 4, wherein the roller (15) and the third drive (14) are kinematically connected by a toothed belt (17) trained around respective wheels (18, 19) keyed, respectively, to the roller (15) and to a shaft (20) protruding from the third drive (14).

6. (canceled)

7. (previously presented) The apparatus according to claim 1, wherein the third electric axis (AE3) comprises the third drive (14) axially connected to a rotary drum (21) that supports the roll (11) to enable pre-unwinding speed to be directly correlated to the feed and cutting speed of the feed and cutting unit (8).

8. (currently amended) The apparatus according to claim 1, wherein the pre-unwinding unit (10) further comprises means (22) for controlling the unwound film (3) and, wherein said means for controlling the unwound film is positioned between the third electric axis (AE3) and the feed and cutting unit (8) and connected directly to the control unit (12).

9. (previously presented) The apparatus according to claim 8, wherein the control means (22) comprise:

a tubular roller (13) guided on both sides by respective vertical guides (23) and resting freely on the film (3) being unwound and sliding freely up and down together with the film (3); and at least

one sensor (24) for detecting the presence of the roller (13) and positioned at a point close to a floor (P); the sensor (24) being connected to the control unit (12) to send to the control unit (12) a signal (S) for stopping the second and the third electric axes (AE2, AE3) when:

the roller (13) is at a lowered first position with the film close to the floor (P), wherein the roller (13) is in a position away from the third electric axis (AE3), for a

length of time greater than a preset time, corresponding to absence of a call for film (3) by the second electric axis (AE2), and

the roller (13) and the film (3) are at a raised second position, close to the third electric axis (AE3), for a length of time greater than a preset time, corresponding to absence of film (3) feed by the third electric axis (AE3).

10. (original) The apparatus according to claim 1, wherein the first drive axis (AE1) is of the electric type.

11. (previously presented) The apparatus according to claim 1, wherein the first and second power driven axes (AE1, AE2) comprise, respectively, a first variable phase drive (26) and a second variable phase drive (25).

12. (previously presented) The apparatus according to claim 1, wherein the control unit (12) is connected to the first (AE1), second (AE2) and third (AE3) electric axes to coordinate the respective profiles of motion substantially constituting electric cams.

13. (previously presented) The apparatus according to claim 2, wherein the third electric axis (AE3) comprises at least the third drive (14) positioned between the roll (11) and the roller (13), and the pair of film (3) feed rollers (15, 16), one of which is kinematically connected to the third drive (14).

14. (previously presented) The apparatus according to claim 3, wherein the third electric axis (AE3) comprises the third drive (14) axially connected to a rotary drum (21) that supports the roll (11) to enable pre-unwinding speed to be directly correlated to the feed and cutting speed of the feed and cutting unit (8).

15. (previously presented) The apparatus according to claim 10, wherein the first and second power drive axes (AE1, AE2) comprise, respectively, a first variable phase drive (26) and a second variable phase drive (25).

16. (previously presented) The apparatus according to claim 11, wherein the control unit (12) is connected to the first (AE1), second (AE2) and third (AE3) electric axes to coordinate the respective profiles of motion substantially constituting electric cams.

17. (previously presented) The apparatus according to claim 4, wherein the third drive (14) is a variable phase drive.

18. (previously presented) An apparatus for wrapping groups of products with film, the apparatus comprising:

a first surface;

a second surface;

wrapping means for wrapping groups of products with a length of film, the wrapping means comprising a first electric drive axis;

a film feed unit for defining a length of film according to dimensions of the group of products to be wrapped, the film feed unit comprising a second electric drive axis for moving a defined quantity of film in the direction of the second surface;

a pre-unwinding unit for pre-unwinding film, said pre-unwinding unit comprising a third electric drive axis to move film from an associated roll of film toward the feed unit;

a synchronizing unit that controls the second and third electric drive axes and that is operative between the second and third electric drive axes to synchronize film feed from the pre-unwinding unit;

a plurality of idle film tensioning rollers defining a film path and located between the film feed unit and the pre-unwinding unit, a first group of at least two of the idle tensioning rollers being fixed in position relative to the third electric drive axis and a second group of at least two of the idle tensioning rollers being mounted on a pivoting rocker arm.